



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

October 19, 1987

RP:0079

Mr. James K. Ikeda, Acting Chief
Environmental Protection and
Health Services Division
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Ikeda:

Zone of Mixing Application No. 58
Citizens Utilities Company, Kauai Electric Division
Port Allen, Kauai

In response to your request of October 6, 1987, we have briefly reviewed the above cited Zone of Mixing (ZOM) Application. We note several significant differences between the effluent quality values (Water Quality Criteria Parameters, Appendix A) for the 1987 ZOM Application as compared with the values given in the "Description of the Discharge" in the 1983 National Pollutant Discharge Elimination System (NPDES) permit. We also note discrepancies between the water quality values and the information presented in Attachment 1 of the ZOM Application.

Specifically, we call your attention to the following:

1983	NPDES	Total Organic Nitrogen (as N)	1.1 mg/l
1987	ZOM	Total Kjeldahl Nitrogen	170 ug/l
		Ammonia Nitrogen	70 ug/l
		Nitrates plus Nitrite	760 ug/l

The Total Organic Nitrogen (TON) values for 1983 are given as 1.1 mg/l. Total Kjeldahl Nitrogen - Ammonia Nitrogen is approximately equivalent to TON and is given as 100 ug/l or 0.1 mg/l, (1987, ZOM). This value is significantly lower than the 1.1 mg/l 1983 value. Furthermore, the reported level of nitrates plus nitrite is consistent with the levels found in groundwater, not sea water.

Mr. James K. Ikeda

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1983	NPDES	Temperature	
		Intake (Summer)	25.0° C
		Intake (Winter)	25.5° C
		Discharge (Summer)	32.8° C
		Discharge (Winter)	35.0° C
1987	ZOM	Temperature	
		Discharge	40.6° C

The 1983 temperature values appear to be reversed for winter and summer. The 1987 40.6° C value is 5.6-7.8° C higher than the values given for 1983 discharge temperatures and is 15.1-15.6° C higher than the 1983 intake temperatures. This conflicts with the statement in Attachment 1 (1987, ZOM) of no change in discharge temperature and a 20° F (note Fahrenheit not Centigrade) difference between intake and discharge temperatures.

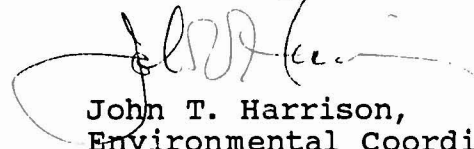
1987	ZOM	Attachment 1 -	
		Sea Water" Salinity	220ppm

Attachment 1 indicates that the cooling water is "sea water" yet the salinity given is a value typical of fresh waters.

The differences and the apparent inconsistencies in the water quality values provided in the 1987 ZOM Application as compared with previous year's figures should be resolved before the issuance of a new Zone of Mixing permit.

We appreciate the opportunity to comment on this ZOM Application.

Yours truly,



John T. Harrison,
Environmental Coordinator

cc: Stephen Lau